



RadioShack 22-510 Switching Power Supply Teardown

This teardown exposes the power supply's functionality by exposing some of it's components.

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INTRODUCTION

The RadioShack 22-510 Switching Power Supply provides AC to DC conversion to mimic a car's electrical system. This teardown looks at some of the components that make this supply function.



TOOLS:

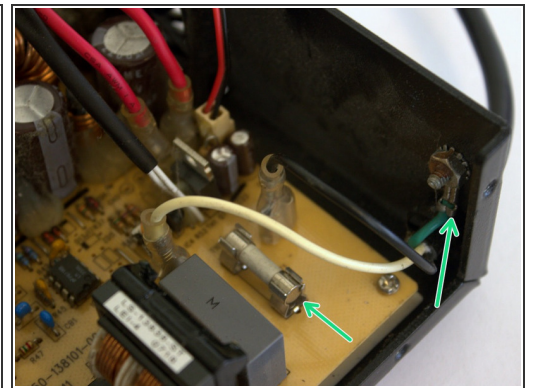
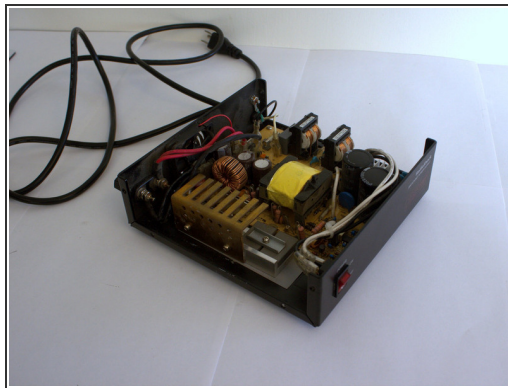
- [Phillips #1 Screwdriver](#) (1)
 - [Adjustable Wrench](#) (1)
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Step 1 — Disconnect Supply Power



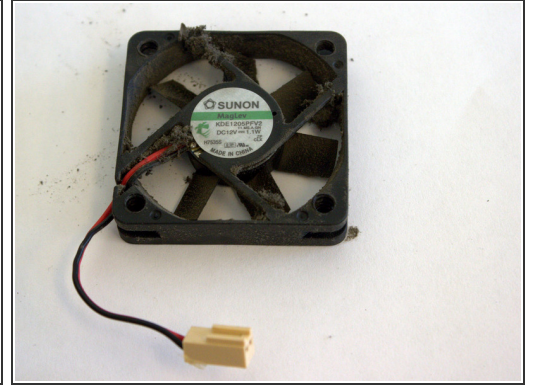
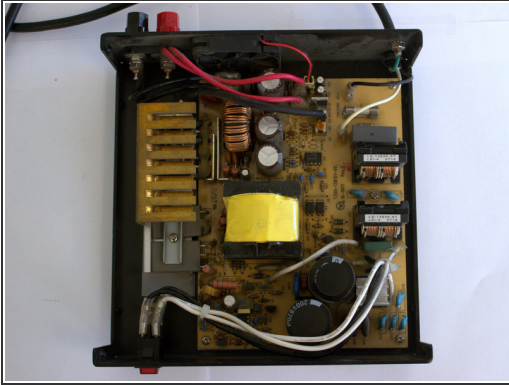
- ⚠ Ensure the power supply is unplugged from mains power before continuing. If the device is powered on during disassembly, serious harm or death may occur.
- ⓘ The entire power supply can be taken apart with a Phillips screwdriver and adjustable wrench.

Step 2 — Remove the Cover



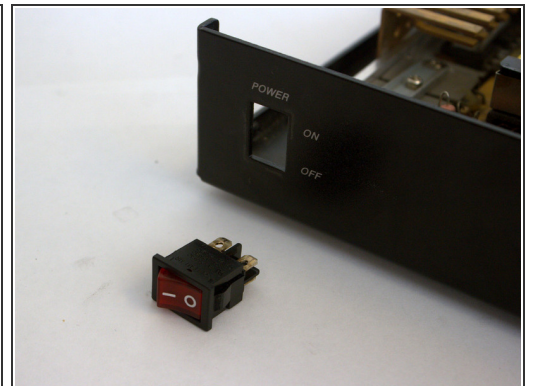
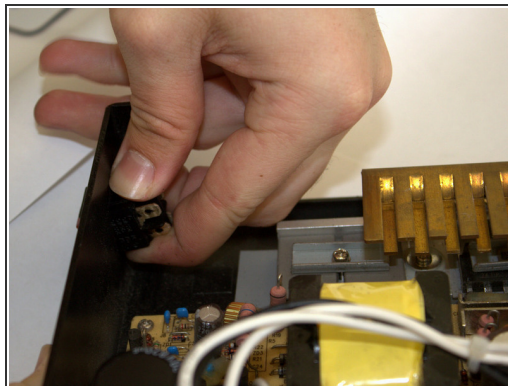
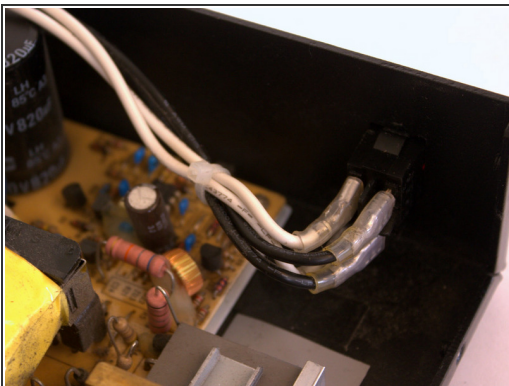
- Removing the eight cover screws on either side of the power supply allows the cover to lift off
- ⓘ Screws can be organized using an [iFixit Magnetic Project Mat](#)
- A fuse protects the system from overcurrent conditions and the chassis is grounded to protect the user from shorts to the case.

Step 3 — Remove Fan



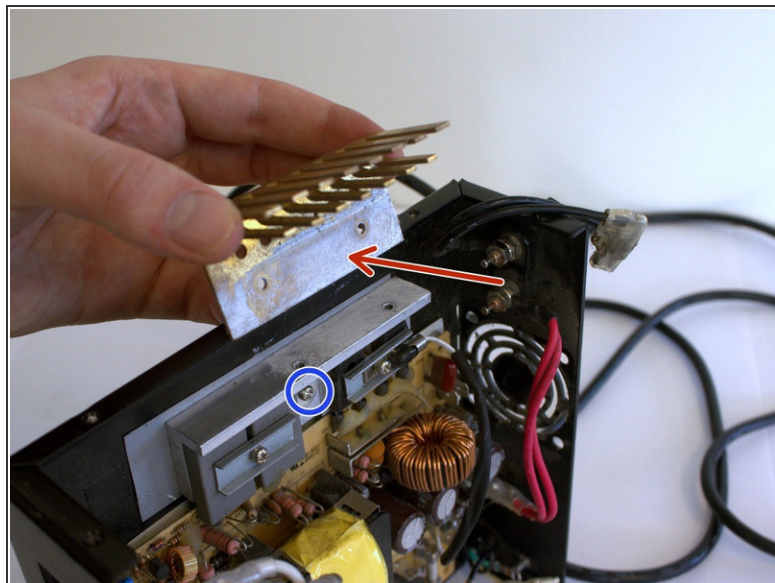
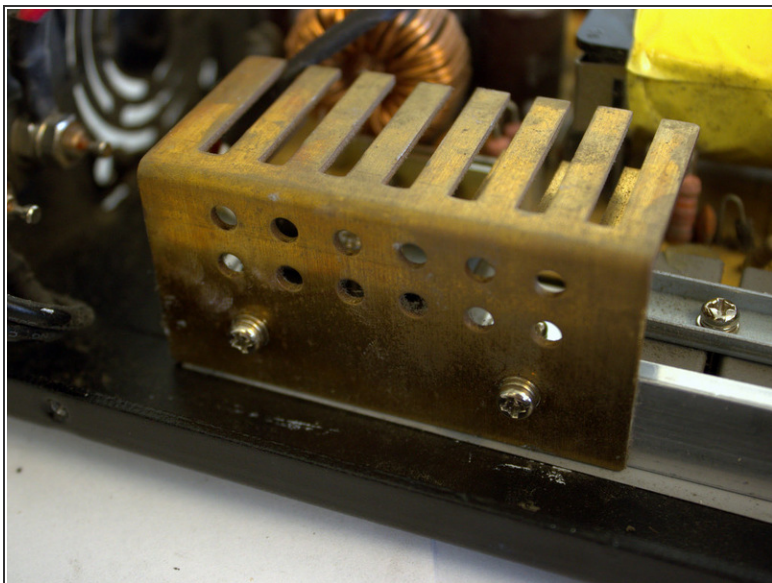
- The fan connector pulls out by hand. The spade terminal connectors may require coaxing with a pair of pliers.
- The [Sunon MagLev KDE1205PFV2](#) runs at 4300 RPM for a maximum airflow of 13 CFM. A dirty fan might not meet these specifications. Remember to clean your fans!

Step 4 — Remove Switch



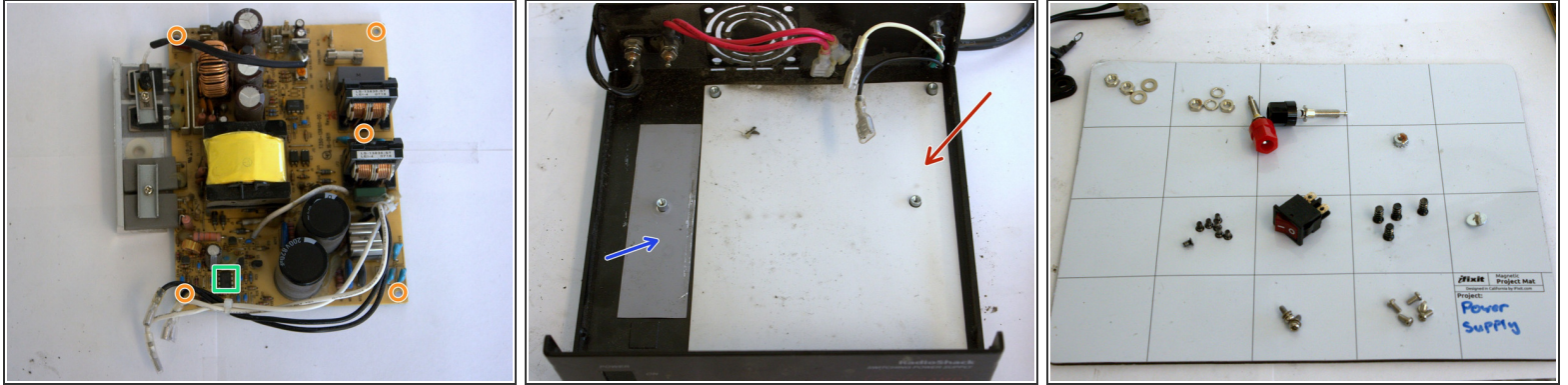
- The illuminated switch is connected by two sets of black and white AC wires and held in by two locking tabs.
- ⚠ The switch is hooked up to the primary side of the circuit. If the switch faults while energized, it has potential to electrocute the user.

Step 5 — Remove Heatsink and Heat Spreader



- Removing the heatsink from the spreader reveals the liberal use of thermal paste. Try not to get it on your hands, it's tough to wash off!
- The silver heat spreader is screwed to the chassis and must be detached before removing the board.

Step 6 — Remove the Board From the Chassis



- The board lifts out of the chassis after removing the five screws holding it down.
 - ⚠ The capacitors may still be charged, do not touch the terminals! The capacitors can be discharged by shorting the terminals with an insulated screwdriver.
 - The [UC3842BN](#) PWM controller handles the switching feedback.
 - The chassis has a sheet of plastic for short circuit prevention under the board.
 - A [thermally conductive pad](#) lies under the heatsink assembly for additional cooling capability.
- 📌 Organized parts make reassembly a breeze.

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